REMARKS

The applicants thank the Examiner for the careful examination of this application and respectfully request entry of the amendments indicated hereinabove.

Claims 1, 3 - 15, and 16 - 50 are pending and rejected. Claims 3, 14, and 40 - 50 are cancelled and Claims 1 and 4 are amended hereinabove.

Amended Claim 1 positively recites that the step of removing the polymeric residue comprises subjecting the semiconductor wafer to a wet etch chemistry and also subjecting the semiconductor wafer to a dry plasma that includes a mixture of hydrogen, oxygen, and fluorine. These advantageously claimed features are not taught or suggested by the patent granted to Kropewnicki et al.

Kropewnicki et al. teaches the use of etch equipment (column 4 lines 13-15, column 6 lines 37-40, column 11 lines 39-40) to perform a plasma etch, i.e. a dry clean (column 6 line 32 to column 7 line 52, column 8 line 55 to column 9 line 15, and column 9 line 37 to column 11 line 35). Conversely, the Applicants teach the use of a downstream plasma tool (i.e. ashers) (page 9 lines 13 - 17) to perform a wet clean process. Etch tools (required for the method taught in Kropewnicki et al.) rely primarily on the physical bombardment of mostly neutral components in a gas mixture to dislodge material and thereby remove it. Ashing tools provide no appreciable ion content at the wafer surface and remove resist solely by the chemical reaction of the excited neutral species provided from the plasma with the

bonds in the resist and polymeric residues. In addition, ashing tools - in comparison to etching tools - operate at higher process pressures, higher gas flows, much higher temperatures and without biasing the wafer.

The Applicants respectfully traverse the assertion in the Office Action that Kropewnicki et al. teaches the use of the advantageously claimed wet clean process in "col. 8-10 and FIG. 4A-4C." The Applicants submit that figures 4A-4C and the associated description relates to the formation of the low-k layers using some wet processing to create the layers, but then cleaning those layers with the Kropewnicki et al. plasma (dry) process.

Furthermore, the Applicants submit that Kropewnicki et al. teaches away from the advantageously claimed invention because not only does Kropewnicki et al. teach the use of only the dry clean method (as noted supra), Kropewnicki et al. teaches that a wet clean is undesirable (column 1 lines 44-58).

Therefore, the Applicants respectfully traverse the Examiner's rejection of Claim 1 and respectfully assert that Claim 1 is patentable over Kropewnicki et al. Furthermore, Claims 4 - 13 and 16 - 29 are allowable for depending on allowable independent Claim 1 and, in combination, including limitations not taught or described in the references of record.

Claim 30 positively recites the step of removing the polymeric residue by subjecting the semiconductor wafer to a wet etch chemistry. These

advantageously claimed features are not taught or suggested by the patent granted to Kropewnicki et al.

The Applicants respectfully traverse the statement in the Office Action that Kropewnicki et al. teaches the use of wet etch chemistry for removing the polymeric residue. Kropewnicki et al. teaches away from the use of wet cleans (col. 1, lines 48-58) while teaching the use of a dry clean process (col. 1, line 66 through col. 2, line 44). The Applicants submit that the Office Action inappropriately points to the "BACKGROOUND" section of the Kropewnicki et al. patent - rather than the "DESCRIPTION" section - to support the assertion that Kropewnicki et al. teaches the use of the wet clean process.

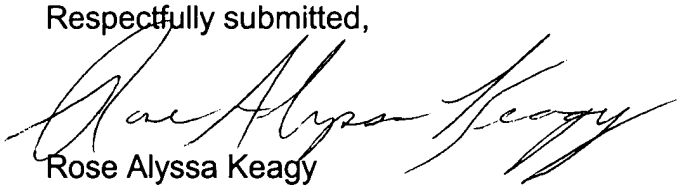
Kropewnicki et al. describes the use of an etching chamber to remove the photoresist and post etch and ash polymeric residues (i.e. col. 2, lines 36-44). The Applicants downstream plasma tool (page 9 lines 13 – 17) operates in a completely different regime that includes higher process pressure, much higher gas flows, much higher temperatures, and no biasing of the wafer. Kropewnicki et al requires biasing of the wafer (col. 2, line 22). The Applicants further assert that the Kropewnicki et al. process produces substantial damage to low-k dielectric material.

Therefore, the Applicants respectfully traverse the Examiner's rejection of Claim 30 and respectfully assert that Claim 30 is patentable over Kropewnicki et al. Furthermore, Claims 31 - 39 are allowable for depending on allowable

independent Claim 30 and, in combination, including limitations not taught or described in the references of record.

For the reasons stated above, this application is believed to be in condition for allowance. Reexamination and reconsideration is requested.

Respectfully submitted,



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